

National Exams December 2010

04-Soft-A7, Software Process

3 hours duration

NOTES:

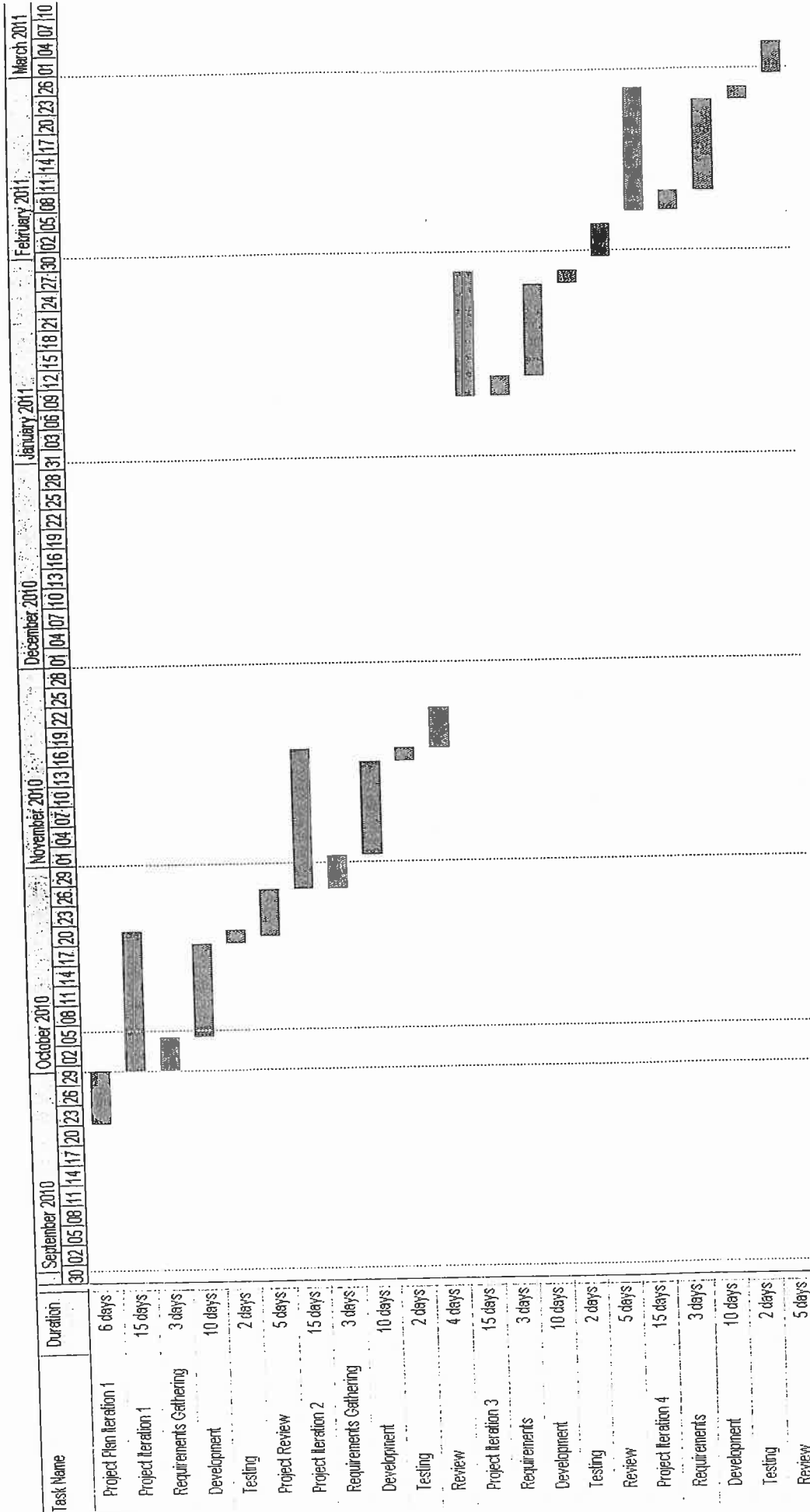
1. If doubt exists as to the interpretation of any question, the candidate is urged to submit with the answer paper, a clear statement of any assumptions made.
2. This is a CLOSED BOOK EXAM. Candidates may use one of two calculators, the Casio or Sharp approved models.
3. FIVE (5) questions constitute a complete exam paper. The first five questions as they appear in the answer book will be marked.
4. Each question is of equal value.
5. Most questions require short written answers. Clarity and organization of the answer are important, but full sentences are NOT required. Be sure to bullet lists and ideas wherever possible.

1.
 - a) What is software process? What is process maturity? How many levels of maturity are determined by CMM (capability maturity model). Characterize briefly each level of CMM (1 line for each).
 - b) What is software process model? Briefly describe the software prototyping model. Identify and briefly describe situation(s) in which software prototyping is used. What are advantages and disadvantages of this model?

2.
 - a) List 3-4 known software project cost/effort estimation techniques. Chose one of them, and briefly explain in which situations this technique is likely to be used and in which situations this technique is unlikely to be used.
 - b) The Gantt chart of a project schedule is given on the next page. Which software process model is used in this project? What is missed on the chart? How would you name the missing item(s) if add them to the chart?

3. Three main sets of activities for dealing with risk are: risk mitigation, risk monitoring, and risk management (RMMM). Assume that you are a project manager of a relatively small software development company. Create an RMMM plan for three risk factors below. Explain very briefly the assignment of levels to the Probability and Impact.

<i>Underestimating Time</i>	Probability:	Impact:
Mitigation		
Monitoring		
Management		
<i>Difficulty with Implementations</i>	Probability:	Impact:
Mitigation		
Monitoring		
Management		
<i>Staff Unavailability</i>	Probability:	Impact:
Mitigation		
Monitoring		
Management		



4.
 - a) Explain briefly the purpose of Formal Technical Reviews.
 - b) What is the difference between quality control and quality assurance?
 - c) Explain briefly concepts of alpha-testing, beta-testing, and pilot testing.

5.
 - a) What is meant by the configuration of the software system?
 - b) What is usually included in the set of configuration items?
 - c) What is the difference between version control and change control?
 - d) What is the difference between version and variant?
 - e) List 3-4 known version control systems.

6.
 - a) What is software maintenance?
 - b) Why maintenance is expensive?
 - c) What is the difference between reverse engineering and re-engineering?
 - d) What are the goals of restructuring?
 - e) Under what circumstances do you think that SW should be scrapped and rewritten rather than re-engineered.

7.
 - a) Give reasons why it is important to reuse programs instead of writing them from scratch.
 - b) What are targets for reuse?
 - c) Compare and contrast different approaches for software reuse?